



Asperger syndrome

Asperger syndrome is a disorder on the autism spectrum, which is a group of conditions characterized by impaired communication and social interaction. Asperger syndrome is on the mild, or "high-functioning," end of the autism spectrum. Many affected individuals learn to compensate for their differences and live independent and successful lives. However, the behavioral challenges associated with this condition often lead to social isolation and difficulties at school, at work, and in personal relationships.

People with Asperger syndrome have average or above-average intelligence. In contrast to people with other disorders on the autism spectrum, they are not delayed in their language development. However, their ability to carry on a conversation is often impaired by a tendency to take idioms or humorous statements literally and an inability to read non-verbal cues such as body language to understand what others are feeling. They may speak in a monotone voice, have unusual mannerisms, or choose unusual topics of conversation.

Individuals with Asperger syndrome tend to develop an intense interest in a particular subject. This interest may be a traditional hobby or academic discipline, and many people with Asperger syndrome develop advanced abilities in fields such as music, science, mathematics, or computer programming. However, they might also focus on an unusual interest such as bus routes or a particular type of household appliance. Often they are able to remember enormous amounts of detail on their subject of interest. They may want to share this large amount of information with others and may resist diversion to other topics.

People with Asperger syndrome tend to be rigid about their established routines and may strongly resist disruptions such as changes in schedule. They may also have difficulty tolerating sensory stimuli such as noise or lights.

Other features of Asperger syndrome may include mild impairment of motor skills. For example, basic skills such as crawling and walking may be somewhat delayed. Affected individuals may also have coordination problems that impair their ability to engage in such activities as playing ball games or riding a bicycle. This physical clumsiness may lead to further social isolation of children with Asperger syndrome.

Signs and symptoms of Asperger syndrome may become apparent by the age of 3, when most children begin to develop social skills such as learning to play with others. Some affected children may come to medical attention due to delayed motor skills. In most cases, children with Asperger syndrome are diagnosed during the elementary school years, as their social behavior continues to diverge from the typical developmental path. Difficulties with social skills generally continue into adulthood, and

affected individuals are at increased risk of other behavioral or psychiatric disorders such as attention deficit-hyperactivity disorder (ADHD), depression, anxiety, and obsessive-compulsive disorder.

Frequency

The prevalence of Asperger syndrome is not well established. Estimates range from 1 in 250 to 1 in 5,000 children. Three to four times as many males are affected than females.

Because of changes in the way developmental disorders are classified, Asperger syndrome was not often diagnosed in adults until recently, and the prevalence is often perceived to be rising as more people are recognized to have features of the condition. Many mildly affected individuals likely continue to be undiagnosed.

Genetic Changes

While genetic factors are believed to contribute to the development of Asperger syndrome, no related genes have been confirmed. It is unclear whether certain gene variations that are being studied in other autism spectrum disorders will play a role in Asperger syndrome. It appears likely that a combination of genetic variations and environmental factors influence the development of this complex condition.

Asperger syndrome is a disorder of brain development. Researchers have identified differences in the structure and function of specific regions of the brain between children with Asperger syndrome and unaffected children. These differences likely arise during development before birth, when cells in the brain are migrating to their proper places.

The differences in brain development that occur in Asperger syndrome appear to affect areas of the brain involved in thought, behavior, and emotions, such as the prefrontal cortex, the amygdala, and the fusiform face area. In particular, cognitive functions called theory of mind, central coherence, and executive function are affected.

Theory of mind is the ability to understand that other people have their own ideas, emotions, and perceptions, and to empathize with them. It is related to the proper functioning of a brain mechanism called the mirror neuron system, which is normally active both when certain actions are performed and when others are observed performing the same actions. Researchers believe that the mirror neuron system is impaired in people with Asperger syndrome.

Central coherence is the ability to integrate individual perceptions into a larger context, commonly known as "seeing the big picture." For example, a person with Asperger syndrome may be able to describe individual trees in great detail without recognizing that they are part of a forest.

Executive function is the ability to plan and implement actions and develop problem-solving strategies. This function includes skills such as impulse control, self-monitoring,

focusing attention appropriately, and cognitive flexibility. People with deficits in these skills may have difficulty in some activities of daily living and in social interactions.

The differences in cognitive functioning observed in people with Asperger syndrome are believed to give rise to the behavioral patterns characteristic of this condition.

Inheritance Pattern

Autism spectrum disorders including Asperger syndrome have a tendency to run in families, but the inheritance pattern is unknown.

Other Names for This Condition

- Asperger disease
- Asperger disorder
- Asperger's disease
- Asperger's disorder
- Asperger's syndrome

Diagnosis & Management

These resources address the diagnosis or management of Asperger syndrome:

- Genetic Testing Registry: Asperger syndrome 1
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1837646/>
- Genetic Testing Registry: Asperger syndrome 2
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1837697/>
- Genetic Testing Registry: Asperger syndrome 3
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1837434/>
- Genetic Testing Registry: Asperger syndrome 4
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1864961/>
- Genetic Testing Registry: Asperger syndrome X-linked 1
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1845341/>
- Genetic Testing Registry: Asperger syndrome X-linked 2
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1845334/>
- Genetic Testing Registry: Asperger's disease
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C0236792/>
- MedlinePlus Encyclopedia: Asperger Syndrome
<https://medlineplus.gov/ency/article/001549.htm>
- National Institute of Mental Health: How is ASD treated?
<https://www.nimh.nih.gov/health/publications/autism-spectrum-disorder/index.shtml>

These resources from MedlinePlus offer information about the diagnosis and management of various health conditions:

- Diagnostic Tests
<https://medlineplus.gov/diagnostictests.html>
- Drug Therapy
<https://medlineplus.gov/drugtherapy.html>
- Surgery and Rehabilitation
<https://medlineplus.gov/surgeryandrehabilitation.html>
- Genetic Counseling
<https://medlineplus.gov/geneticcounseling.html>
- Palliative Care
<https://medlineplus.gov/palliativecare.html>

Additional Information & Resources

MedlinePlus

- Encyclopedia: Asperger Syndrome
<https://medlineplus.gov/ency/article/001549.htm>
- Health Topic: Autism Spectrum Disorder
<https://medlineplus.gov/autismspectrumdisorder.html>

Genetic and Rare Diseases Information Center

- Asperger syndrome
<https://rarediseases.info.nih.gov/diseases/5855/asperger-syndrome>

Additional NIH Resources

- Eunice Kennedy Shriver National Institute of Child Health and Human Development: Autism Spectrum Disorder
<https://www.nichd.nih.gov/health/topics/autism/Pages/default.aspx>
- National Institute of Mental Health: Autism Spectrum Disorders
<https://www.nimh.nih.gov/health/publications/autism-spectrum-disorder/index.shtml>
- National Institute of Mental Health: How is ASD treated?
<https://www.nimh.nih.gov/health/publications/autism-spectrum-disorder/index.shtml>
- National Institute of Neurological Disorders and Stroke (NINDS): Autism Spectrum Disorder Fact Sheet
<https://www.ninds.nih.gov/Disorders/All-Disorders/Autism-Spectrum-Disorder-Information-Page>

Educational Resources

- American Academy of Child and Adolescent Psychiatry
https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Aspergers-Disorder-069.aspx
- Centers for Disease Control and Prevention: Autism Spectrum Disorder
<https://www.cdc.gov/ncbddd/autism/index.html>
- Disease InfoSearch: Asperger Syndrome
<http://www.diseaseinfosearch.org/Asperger+Syndrome/624>
- KidsHealth: Asperger Syndrome
<http://kidshealth.org/en/parents/asperger.html>
- MalaCards: asperger syndrome
http://www.malacards.org/card/asperger_syndrome
- Orphanet: Asperger syndrome
http://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=EN&Expert=1162

Patient Support and Advocacy Resources

- Asperger Syndrome Education Network
<http://aspennj.org/>
- Autism Society
<http://www.autism-society.org/what-is/aspergers-syndrome/>
- Autism Speaks
<https://www.autismspeaks.org/>
- Geneva Centre for Autism (Canada)
<http://www.autism.net/>

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<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1837697/>
- Asperger syndrome 3
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1837434/>
- Asperger syndrome 4
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1864961/>
- Asperger syndrome X-linked 1
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1845341/>

- Asperger syndrome X-linked 2
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C1845334/>
- Asperger's disease
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C0236792/>

ClinicalTrials.gov

- ClinicalTrials.gov
<https://clinicaltrials.gov/ct2/results?cond=%22Asperger+syndrome%22>

Scientific Articles on PubMed

- PubMed
<https://www.ncbi.nlm.nih.gov/pubmed?term=%28Asperger+Syndrome%5BMAJR%5D%29+AND+%28Asperger+syndrome%5BTIAB%5D%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+720+days%22%5Bdp%5D>

OMIM

- ASPERGER SYNDROME, SUSCEPTIBILITY TO, 1
<http://omim.org/entry/608638>
- ASPERGER SYNDROME, SUSCEPTIBILITY TO, 2
<http://omim.org/entry/608631>
- ASPERGER SYNDROME, SUSCEPTIBILITY TO, 3
<http://omim.org/entry/608781>
- ASPERGER SYNDROME, SUSCEPTIBILITY TO, 4
<http://omim.org/entry/609954>
- ASPERGER SYNDROME, X-LINKED, SUSCEPTIBILITY TO, 1
<http://omim.org/entry/300494>
- ASPERGER SYNDROME, X-LINKED, SUSCEPTIBILITY TO, 2
<http://omim.org/entry/300497>

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